

FUTURE MOBILITY CALCULATOR: AN ELECTRIC MOBILITY INFRASTRUCTURE ASSESSMENT TOOL

Vishant Kothari, Ryan Sclar,
Eleanor Jackson, Emmett
Werthmann, Jone Orbea



As urban centres continue to grow, so will the share of global emissions they produce. In 2019, transportation accounted for 24 percent of global CO₂ emissions and is the fastest growing emissions sector, with road vehicles accounting for nearly three-quarters of all transport CO₂ emissions. Electrification within the transport sector presents a solution to help mitigate potential emissions associated with the growth of cities.

While electric vehicles (EVs) are an attractive option to reduce emissions and operational costs, uptake of the technology at scale will require the development of a robust vehicle adoption pathway and charging infrastructure network. Understanding the appropriate quantity and type of charging stations to install, the increased electricity demand from EVs, and the costs and the benefits of vehicle and infrastructure deployment is crucial for effective resource management and decision making.

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To help facilitate planning, this paper introduces the Future Mobility Calculator (FMC). Developed by the World Resources Institute and Siemens in collaboration with the Coalition for Urban Transitions, the FMC focuses on the urban infrastructure needed for successful EV and charging station rollout and the costs and social benefits associated with that investment. The FMC aims to help cities make informed decisions and plan accordingly for the future of their mobility and energy systems.

The FMC is an Excel-based tool that, for a given range of city-specific inputs (general city data, mobility data, charging infrastructure data, and cost data) and a projected electric transport uptake scenario for 2035 and 2050, identifies the quantity and cost of infrastructure required. It also quantifies some of the emissions benefits that would result from an investment in electric transport infrastructure, based on input data and listed assumptions.

The FMC incorporates a transparent interface allowing the user to view inputs and calculations as well as integrate their own data, allowing complete customization for the city in question. When city-specific data are not available, the tool is programmed with over 500 default data points, which help fill gaps in the user's data. These default inputs are sourced from work done by a range of institutions including the IPCC, World Bank, C40, IEA, IRENA, US EPA, UNEP, and ICCT, among others. The tool is open-sourced, and users can change any desired default assumptions, in addition to the suggested city-specific inputs.

ACKNOWLEDGEMENTS

The authors would like to thank all the individuals and organisations who provided information and insights in preparing this tool. In particular, we would like to thank Sebastian Castellanos (WRI); Catlyne Haddaoui (Coalition for Urban Transitions); Catarina Heeckt (LSE); Parveen Kumar (WRI); Leah Lazer (Coalition for Urban Transitions); Erika Myers (WRI); Noorie Rajvanshi (Siemens); Andrew Sudmant (University of Leeds) for reviewing this note.

The tool is available at: urbantransitions.global

Full methodology available at: urbantransitions.global

Coalition for Urban Transitions

c/o World Resources Institute
10 G St NE
Suite 800
Washington, DC 20002, USA
+1 (202) 729-7600

C40 Climate Leadership Group

3 Queen Victoria Street
London EC4N 4TQ
United Kingdom
+44 (0) 20 7922 0300

WRI Ross Center for Sustainable Cities

10 G St NE
Suite 800
Washington, DC 20002, USA
+1 (202) 729-7600



This material has been funded by the UK government; however, the views expressed do not necessarily reflect the UK government's official policies.

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